

AMSAT News Service Weekly Bulletins

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AMSAT NEWS SERVICE

ANS-052

ANS is a free, weekly, news and information service of AMSAT North America, The Radio Amateur Satellite Corporation. ANS reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

Please send any amateur satellite news or reports to:
ans-editor@amsat.org

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SB SAT @ AMSAT \$ANS-052.01

ARISSat Design Review Held

AMSAT News Service Bulletin 052.01

>From AMSAT HQ SILVER SPRING, MD.

February 21, 2010

To All RADIO AMATEURS

BID: \$ANS-052.01

Members of the ARISSat team from AMSAT, NASA and Microchip held a Design Review in Orlando Monday and Tuesday February 15-16, 2010. There were 23 presentations describing the operation, status and testing of the major areas of the satellite. Many of the members used their holiday and vacation time to participate in a 12 hour session on Monday and 9 hour session on Tuesday before heading home.

The meeting was very successful in identifying areas that need additional work and definition. The major items to work on are the Max Power Point Tracker, the ICB (Interconnect Board), working on making a warmer environment for the battery, power management software and IHU software.

The prototype structure was on display and additional structures are being built. We have nearly all the flight electronics built and checked. The next challenges are developing test plans and coordinating with NASA for thermal, vacuum and vibrations tests. We will not be able to deliver an operational and vetted satellite in March and are in discussion about a launch and EVA date later this year.

The presentations in PDF format will shortly be available on the arissat.org site under Design Review.

[ANS thanks Gould Smith, WA4SXM for the above information]

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SB SAT @ AMSAT \$ANS-052.02

Satellite DXpeditions Coming Soon: K4T & Hawaii

AMSAT News Service Bulletin 052.02

>From AMSAT HQ SILVER SPRING, MD.

February 21, 2010

To All RADIO AMATEURS

BID: \$ANS-052.02

K4T DXpedition

The K4T DXpedition to EL84 web page (<http://aroadventures.org/>) says the team plans to include satellite operations. The DXpedition dates are March 11-15, 2010. Team Leader for K4T, Mike Forsythe, AC2V says, "One of the primary stations will be dedicated to satellite operations on a 24 hour basis. Mark Hammond, N8MH will be heading up K4T satellite operations. K4T will be using batteries, solar power, and wind power. It's a completely 'green' operation".

Mike, AC2V said, "The satellite station plans to work FM, SSB and perhaps a bit of CW. We have requested that the secondary repeater on A051 be dedicated to K4T. As for equipment, at the primary station we are going to have redundant Icom 910 transceivers, Yaesu G-5500 rotor, LVB Tracker, ARR preamps and M2 CP yagi antennas and will be running SATPC32. We also have the option of portable operations with a Yaesu FT-817 with an Elk antenna."

Mark, N8MH said, "We're going to have a top-notch satellite station! You can expect us to be active on A0-7, A0-27, F0-29, S0-50, A0-51, V0-52, S0-67, and H0-68 (depending on the mode schedules of the satellites, of course)." In order to make it easiest to catch K4T this list of target frequencies is planned to be used as a starting point:

Target Frequencies for K4T 11 March - 15 March 2010:

Satellite Downlink Uplink

A0-7	145.960 USB	432.136 LSB
A0-27	436.795 FM	145.850 FM
F0-29	435.860 USB	145.940 LSB
S0-50	436.795 FM	145.850 FM
A0-51	435.150 FM	145.880 FM (primary)
A0-51	435.300 FM	145.920 FM (secondary)
V0-52	145.910 USB	435.240 LSB
H0-68	435.760 USB	145.930 LSB

Oahu BL11 and Kauai BL01 and BL02

Adrian, AA5UK, will be on Oahu (BL11) and Kauai (BL02ic & BL01) from March 24th through April 7th operating portable KH6. He plans to operate on the Linear and FM satellites during his stay, mostly from his rented house in BL02ic (March 27th through April 5th) and will try to operate portable/mobile from BL11 and BL01 time permitting. Emphasis will be SSB on F0-29, VU-52, A0-7 and H0-68. Adrian will post daily availability via AMSAT BB, QRZ.com: <http://www.qrz.com/db/aa5uk>, and Twitter: @AA5UK. Sked requests are encouraged due to the limited pass windows for those operators needing HI for WAS at the fringe of the footprints. Please use the email listed on QRZ.com to arrange for a time and date.

AMSAT DXpedition Loaner Gear

As a reminder, AMSAT has two Arrow antennas, and a TH-D7 available

for loan to any member going on a DXpedition, or grid trip. This is the same gear used to activate K5D last year about this time. The D7 is programmed with Alpha-Memory tags for the FM satellites and has both rechargeable and AA battery packs, and is very simple to use. Contact Drew, K04MA (ko4ma@amsat.org) if you have a need to use it.

[ANS thanks Mike, AC2V; Mark, N8MH; Adrian, AA5UK; and Drew, K04MA for the above information]

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SB SAT @ AMSAT \$ANS-052.03
A0-27 Schedule Lister Updated

AMSAT News Service Bulletin 052.03
>From AMSAT HQ SILVER SPRING, MD.
February 21, 2010
To All RADIO AMATEURS
BID: \$ANS-052.03

A new schedule was uploaded to A0-27 on February 9. The ON-OFF timing of A0-27 may be out of sync with your prior expectations.

George, KA3HSW reminds users of the A0-27 Java schedule lister to make sure that you have updated your data files! (File menu, Update Data or hit CTRL U)

The A0-27 schedule lister is available to download at <http://sites.google.com/site/ao27satellitescheduler>.

[ANS thanks George, KA3HSW for the above information]

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SB SAT @ AMSAT \$ANS-052.04
College Satellite Night First Thursday Each Month

AMSAT News Service Bulletin 052.04
>From AMSAT HQ SILVER SPRING, MD.
February 21, 2010
To All RADIO AMATEURS
BID: \$ANS-052.04

College Satellite Night is planned for all available satellites on the first Thursday of each month. These are a monthly event! College club stations plan on being on birds A051, S050, A07, V052, H0-68 and F0-29. Welcome the student operators and enjoy your QSOs with them as we are planning on creating an award for working college club stations on satellite. Mark your calendar and spread the word to college hams/club stations that you know!

[ANS thanks Dr. Jay Garlitz, AA4FL, Faculty Advisor for the Gator Radio Club at the University of Florida for the above information]

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SB SAT @ AMSAT \$ANS-052.05
Satellite and Space Shorts From All Over

AMSAT News Service Bulletin 052.05
>From AMSAT HQ SILVER SPRING, MD.

February 21, 2010
To All RADIO AMATEURS
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Hams like science so here we go ...

- + Spectacular SRB Videos from STS-130 Provide Night-time Shuttle Launch can be viewed on-line at: <http://tinyurl.com/yknofyh>
This launch video taken from the perspective of a camera mounted on the space shuttle's solid rocket boosters. [UniverseToday]
- + Watch Time-Lapse of EVA-1/Tranquility Node Berthing at: <http://tinyurl.com/ydsa4r7> A shorter time lapse video clip of the berthing can be viewed at: <http://tinyurl.com/y9lxvhk> [UniverseToday]
- + A collection of photos from the STS-130 mission can be found on-line at: <http://tinyurl.com/ydnugtl> [UniverseToday]
- + An animation of a trip to Mars can be viewed at the One Minute Astronomer web page: <http://tinyurl.com/ycdut88>
- + Matthias, DD1US has updated his "Sounds from Space" collection at <http://www.ddlus.de> with recently received information about early AMSAT satellites. He would like audio files from early satellites A0-2 thorough A0-5 if you have them available.
- + Watch for Paul, 2M1EUB operating on the satellites from Scotland starting on March 20, 2010 for 7 days (Grid I087mc). QSL via home callsign 2E1EUB.
- + Congratulations to Clint Bradford, K6LCS for a successful satellite demonstration at the Desert Rats Amateur Radio Club on February 16. Clint says about twenty folks showed up for the 5:37PM PST pass of A0-51. The main meeting and presentation started at 7PM to a packed house. Clint's web page is at: <http://www.work-sat.com>

[ANS thanks everyone for the above information]

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SB SAT @ AMSAT \$ANS-052.06
AMSAT - SUNY Binghamton - IBM NextGen CubeSat Development Report

AMSAT News Service Bulletin 052.06
>From AMSAT HQ SILVER SPRING, MD.
February 21, 2010
To All RADIO AMATEURS
BID: \$ANS-052.06

NextGen CubeSat Program Manager, Alex Harvilchuck, N3NP has provided an update on AMSAT's cooperative CubeSat development project working with senior class engineering students at the State University of New York at Binghamton (SUNY) and the IBM Research Center.

Using the ARISSat Power Supply Unit as a baseline design the backplane and Solar Panel Charge Controller designs have been redesigned to use Pseudocapacitors instead of traditional batteries. Based on a worse-case, 600km orbit, the student design can produce a whole-orbit power budget of 7.5 watts using a 3U CubeSat design. Analysis has shown if a spacecraft is launched into a more optimal orbit, like a sun-synchronous orbit, one of the two Pseudocapacitor banks can be removed. The design can be scaled to be used with other classes of spacecraft

(2U/1U CubeSat, or Microsats). The design has gone through two reviews with AMSAT Engineering including Lou W5DID, Barry WD4ASW & Tony AA2TX.

A second student engineering team has designed a light-weight deployable solar panel design with integral magnetorquer coils for attitude control. The design will produce about 12-15 watts per minute in any orientation (worse-case) for 3U, less with 2U or 1U. If a spacecraft is launched into a more optimal orbit the number of solar cells can be reduced while maintaining the power budget

Alex also reported that the students have analyzed the existing AMSAT spacecraft modules (from ARISSat & P3D) and determined that they can fit the SDX and U/V Linear Transponder systems from ARISSat into a 2U or 3U CubeSat Chassis without significant re-design. If the ARISSat boards were redesigned/repackaged they could fit within a 1U Chassis.

The Internal Housekeeping Unit is going to be slightly redesigned to incorporate the Command Decoder board functions. The base concepts from P3D for the Sun & Earth Sensor Systems are reusable in the NextGen satellite.

Alex concluded, "The NextGen Satellite R&D, sponsored by AMSAT, is being performed by Engineering Students for their Senior Design projects. We have 8 Mechanical Engineers and Electronic Engineers plus 26 Systems Engineering students. So I encourage everyone to contribute what you can to AMSAT to help fund spacecraft systems development and launch opportunities. If we have reliable, lower-cost, modular systems, then AMSAT can be more responsive to any launch opportunity.

We'll have more info on the research we're doing in the next issue of the Journal and look for us at the AMSAT table in Dayton!

[ANS thanks Alex Harvilchuck, N3NP for the above information]

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In addition to regular membership, AMSAT offers membership in the President's Club. Members of the President's Club, as sustaining donors to AMSAT Project Funds, will be eligible to receive additional benefits. Application forms are available from the AMSAT Office. And with that, having recently observed President's Day in the USA please keep in mind that when George Washington cut down the cherry tree he could not tell a lie because he ate all the cherries, got cherry juice on his hands and got caught red handed.

73,
This week's ANS Editor,
JoAnne Maenpaa, K9JKM
K9JKM at amsat dot org